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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,835	02/14/2001	Shozo Nagano	30-5000-(4015) -Div3	2586

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EXAMINER

IP, SIKYIN

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 11/18/2003

23

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/783,835

Applicant(s)

NAGANO ET AL.

Examiner

Sikyin Ip

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 53-55 and 60-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 53-55 and 60-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 53-55, 60-62, and 64-69 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 5590389 to Dunlop et al in view of USP 4786469 to Weber et al.

4. The Dunlop reference(s) disclose(s) the features including the claimed sputtering target (col. 1, lines 21-25), grain size (col. 3, line 65 to col. 4, lines 9 to 27; and col. 5, line 66 to col. 6, line 2), second phase/precipitate (col. 2, lines 18-26). Dunlop discloses target with fine grain size can be deposited at higher rate (col.1, lines 45-59). Dunlop does not disclose the claimed Cu based alloy containing Tc element and purity of the Cu element, relative electromigration resistance, and

relative thermal stability. However, Weber in the abstract (c) and col. 3, lines 21-34 discloses that alloying element such as Tc would refine Cu alloy grain size in the same field of endeavor or the analogous metallurgical art. Therefore, combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. In re Castner, 186 USPQ 213 (217) and In re Raner, 134 USPQ 343 (CCPA 1962).

5. With respect to the high purity of Cu element, relative electromigration resistance, and relative thermal stability, that using high purity elemental Cu for sputtering target material is known in art of cited reference. There is no evidence that Tc is critical for the relative electromigration resistance and relative thermal stability. As the references combined, the instant Cu based sputtering target material is overlapped by the cited references; consequently, the electromigration resistance and thermal stability properties as recited in the instant claims would have been inherently possessed by the teachings of the cited references. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product.

In re Best, 195 USPQ, 430 and MPEP §2112.01.

“Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). ‘When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.’ In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977).”

6. Claim 63 is rejected under 35 U.S.C. § 103 as being unpatentable over USP 5590389 to Dunlop et al in view of USP 4786469 to Weber et al as applied to claims above and further in view of JP 49007777.

7. The claimed subject matter as is disclosed and rejected above by the cited reference(s) except for Tl element. However, JP 49007777 in the abstract discloses Tl element is known to improve Cu alloy heat resistance and electrical conductivity. Therefore, combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. In re Castner, 186 USPQ 213 (217) and In re Raner, 134 USPQ 343

(CCPA 1962).

Response to Arguments

8. Applicant's arguments filed August 20, 2003 have been fully considered but they are not persuasive.

9. Applicants argue that grain refining elements of Weber require Ti and/or Zr. But, instant claim 60 has a transitional expression "consisting essentially of" which limits the scope of a claim to the specified ingredients and those that do not materially affect the basic and novel characteristics of a composition. *Ex parte Davis*, et al., 80 USPQ 448, 450 (PTO Bd. App. 1948), *In re Janakirama-Rao*, 317 F. 2d 951, 137 USPQ 893, 894 (CCPA 1963), *In re Garnero*, 412 F 2d 276, 162 USPQ 221, 223 (CCPA 1969), and *In re Herz*, et al., 190 USPQ 461, 463 (CCPA 1976). When applicant contends that modifying components in the reference composition are excluded by the recitation of "consisting essentially of" applicant has the burden of showing the basic and novel characteristic of his/her composition - i.e. a showing that the introduction of these components would materially change the characteristics of applicant's composition. *In re De Lajarte*, 337 F 2d 870, 143 USPQ 256 (CCPA 1964) and *Ex parte Davis*, et al., 80 USPQ 448, 450 (PTO Bd. App. 1948).

10. Applicants' argument in paragraph bridging pages 7-8 of instant remarks is noted. Assuming *arguendo* that the Weber discloses Ti and/or Zr is part of essential

elements for grain refinement but the instant transitional expression "consisting essentially of" does not exclude such elements (see item 9 above).

11. Applicants argue the copper alloy of Sakamoto contains Ti. But, Sakamoto is applied to teach the addition of Ti as in instant claim 63.

Examiner Correspondence

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (703) 308-2542. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (703)-308-1146.



S. Ip
November 16, 2003

SIKYIN IP
PRIMARY EXAMINER